NOAA
R104

GENERAL NOTES

1. THIS DRAWING WAS DEVELOPED AND CONVERTED FROM PREVIOUS FORMAT OF REFERENCE 1 UNDER CONTRACT NO AB133M-05-CQ-1044. MODIFICATIONS FROM REFERENCE 11 AND UNDOCUMENTED CHANGES NOTED DURING 08/15/10 SHIPCHECK ARE INCORPORATED.

2. ARABIC DRAFT NUMERALS REPRESENT NAVIGATIONAL DRAFTS AND HEIGHT ABOVE BOTTOM OF FLAT KEEL AMIDSHIPS EXTENDED. SEE REFERENCE 25.

3. DIMENSIONS:
   (A) LONGITUDINAL LOCATIONS OF ALL ITEMS ARE GIVEN FROM THE STERN REFERENCE POINT (AFTER END OF MAIN DECK AT CENTERLINE).
   (B) HEIGHTS OF ALL ITEMS ARE GIVEN FROM THE BOTTOM OF THE KEEL AMIDSHIPS EXTENDED.
   (C) LONGITUDINAL LOCATIONS AND HEIGHTS OF SIDE BLOCKS ARE TAKEN TO THE AFTER SIDE OF BLOCKS.

4. COMPLETE PAINTING OF HULL:

   (A) IN ORDER TO CLEAN AND PAINT THE ENTIRE BOTTOM OF THE VESSEL IN THREE SUCCESSIVE DOCKINGS. THE FOLLOWING POSITIONS OF THE VESSEL ARE NECESSARY:

      (1) POSITION NO 1:
      AFTER END OF MAIN DECK (POINT OF REFERENCE) IS PLACED 57'-4" AFT OF AFTER SIDE OF NO 1 SIDE BLOCK.

      (2) POSITION NO 2:
      AFTER END OF MAIN DECK (POINT OF REFERENCE) IS PLACED 59'-4" AFT OF AFTER SIDE OF NO 1 SIDE BLOCK.

      (3) POSITION NO 3:
      AFTER END OF MAIN DECK (POINT OF REFERENCE) IS PLACED 55'-4" AFT OF AFTER SIDE OF NO 1 SIDE BLOCK.

   (B) REPEAT CYCLE OF POSITIONS. ASCERTAIN FROM VESSEL THE POSITION OF THE VESSEL AT ITS LAST DOCKING.

5. TABLE OF OFFSETS DIMENSIONS ARE GIVEN IN FEET, INCHES, AND EIGHTHS OF AN INCH.

6. KEEL BLOCKS SHALL BE CONFIGURED TO CLEAR DRAIN PLUGS.

7. BLOCKING:

   (A) THE BLOCKING SHOWN ON THIS PLAN IS THAT REQUIRED FOR BLOCKING UNDER ORDINARY UNDAMAGED CONDITIONS FOR 8'-0", 12'-0", OR 16'-0" SPACED BEARERS IN DRYDOCK.

   (B) KEEL BLOCKS:

      (1) KEEL BLOCKS SHALL BE ARRANGED IN PIERS CONSISTING OF THREE 14"x14" HARDWOOD TIMBERS MOUNTED WITH 2 INCH MIN THICKNESS SOFTWOOD CAP BLOCKS. LONGITUDINAL SPACING TO BE 6'-0" CENTER TO CENTER WITH 30 INCH CLEAR SPAN BETWEEN PIERS.

      (2) NO BLOCKS FOR SHORES ARE REQUIRED UNDER ORDINARY CONDITIONS OF DOCKING UNDER THE BOW FORWARD OF FR 10 AND UNDER THE STERN AFT OF FR 108.

      (3) DOCKING POSITION NO 1 – OMIT BLOCKS 7 AND 16. SHIFT BLOCK 15 24" AFT (TO 123'-4" FWD OF REFERENCE POINT).

      (4) DOCKING POSITION NO 2 – OMIT BLOCKS 6, 7, 15, AND 18.

      (5) DOCKING POSITION NO 3 – OMIT BLOCKS 9, 16, 19, AND 22.

      (6) SEE TABLE FOR KEEL BLOCKS 7 AND 8 – SHEET 3, ZONE 22-H.

   (C) SIDE BLOCKS (SHOWN ON THIS PLAN IN ALL THREE DOCKING POSITIONS) ARE INDICATED FOR 8'-0" SPACED BEARERS (P) AND 12'-0" SPACED BEARERS (S).

      (1) SIDE BLOCKS SHALL BE LOCATED (P) AND (S) UNDER LONGITUDINAL BULKHEAD AT 7'-0", 8'-6", 10'-6", AND 14'-0" OFF CENTERLINE AS INDICATED ON TABLE OF OFFSETS IN ACCORDANCE WITH BEARER SPACING OF DOCK, EXCEPT AS NOTED,

      (2) SOFTWOOD CAPS ARE REQUIRED.

      (3) DIRECTION OF BEVEL ON BLOCKS IN 18 INCHES IS DOWN (–) OR UP (+) FROM THE HEIGHT GIVEN AT THE AFTER SIDE OF THE BLOCK IN TABLE OF OFFSETS, DIM "C".

      (4) THE TABLES OF OFFSETS WILL PERMIT DOCKING FROM PLAN IN DOCKS WHICH HAVE 8'-0", 12'-0" PR 16'-0" BEARER SPACING. BLOCK SPACING 12'-0" OR 16'-0" ONLY ARE REQUIRED WHEN DOCKING VESSELS OFF CENTER IN DOCKS WHICH HAVE 8'-0" BEARER SPACING. IT IS PERMISSIBLE TO STAGGER THE BLOCKS USING ODD ON ONE SIDE AND EVEN ON THE OTHER.

      (5) SIDE BLOCKS ARE NUMBERED FROM AFT, FORWARD WITH BLOCKS AS NO1.

      (6) UNIVERSAL CAP SIDE BLOCKS MAY BE USED IN LIEU OF FITTED BLOCKS.

8. ABBREVIATIONS USED ON THIS DRAWING ARE IN ACCORDANCE WITH ASME Y14.38.

LIST OF MATERIALS

PC NO	QTY	DESCRIPTION	MATERIAL	MATERIAL SPEC – GRADE	REMARKS
1	592 EA	ANODE, 6"x12"x1-¼", ZHC-23	ZINC	–	–

CRITICAL DIMENSIONS

LENGTH OVERALL	273'-2"
LENGTH BETWEEN PERPENDICULARS	252'-8"
BREADTH (EXTREME, HULL AT MIDSHIP	52'-6"
FRAME SPACING	24"
FIRST SIDE BLOCK IS:	FROM STERN REF POINT
NO 1 DOCKING POSITION	57'-4"
NO 2 DOCKING POSITION	59'-4"
NO 3 DOCKING POSITION	55'-4"
END OF SKEG	31'-4"
HEIGHT OF MAST ABV 17'-0" WL	95'-6"
DRAFT FULL LOAD	17'-0"

REVISIONS

REV	SHT	ZONE	ITEM	DESCRIPTION	DATE	APPD

REFERENCES

NO	TITLE	DRAWING NO
1	DOCKING PLAN, REV-C (OBSOLETE)	801-6932861
2	SHELL EXPANSION	101-6932827
3	STRUCTURAL MODULE ASSEMBLY NO 1	101-6932801
4	STRUCTURAL MODULE ASSEMBLY NO 2	101-6932802
5	STRUCTURAL MODULE ASSEMBLY NO 3	101-6932803
6	STRUCTURAL MODULE ASSEMBLY NO 4	101-6932804
7	STRUCTURAL MODULE ASSEMBLY NO 5	101-6932805
8	STRUCTURAL MODULE ASSEMBLY NO 6	101-6932806
9	STRUCTURAL MODULE ASSEMBLY NO 7	101-6932807
10	MULTIBEAM FAIRING INSTALLATION, REV-A	RB-461A-06
11	STRUCTURAL MODULE ASSEMBLY NO 24	101-6932824
12	BILGE & BALLAST SYSTEM A & D	529-6932831
13	OILY WASTE SYSTEM A & D	593-6932950
14	WATERMAKER & POTABLE WATER SYSTEM A & D	533-6932933
15	AUX SEAWATER SYSTEM A & D	256-6932915
16	ENG SEAWATER COOLING A & D	256-6932916
17	PIPING MODULE ASSEMBLY NO 1	501-6932901
18	PIPING MODULE ASSEMBLY NO 2	501-6932902
19	MOORING & TOWING A & D	582-6932844
20	BILGE KEEL DETAILS	110-6932829
21	SEACHESTS	163-6932909
22	PLUMBING, SEWAGE, & WEATHER DECK A & D	528-6932929
23	PIPING MODULE ASSEMBLY NO 5	501-6932905
24	PIPING MODULE ASSEMBLY NO 6	501-6932906
25	HULL MARKINGS	603-6932850

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OFFICE OF MARINE AND AVIATION OPERATIONS

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CONTRACT NO. AB133M-05-CQ-1044
TAR NO. AAA-054(10)
DSGN S. NEWBURY 10/29/2010
DWN J. WALKER 10/29/2010
CHK G. JENNINGS 11/01/2010
CHK J. CARLSON 11/01/10

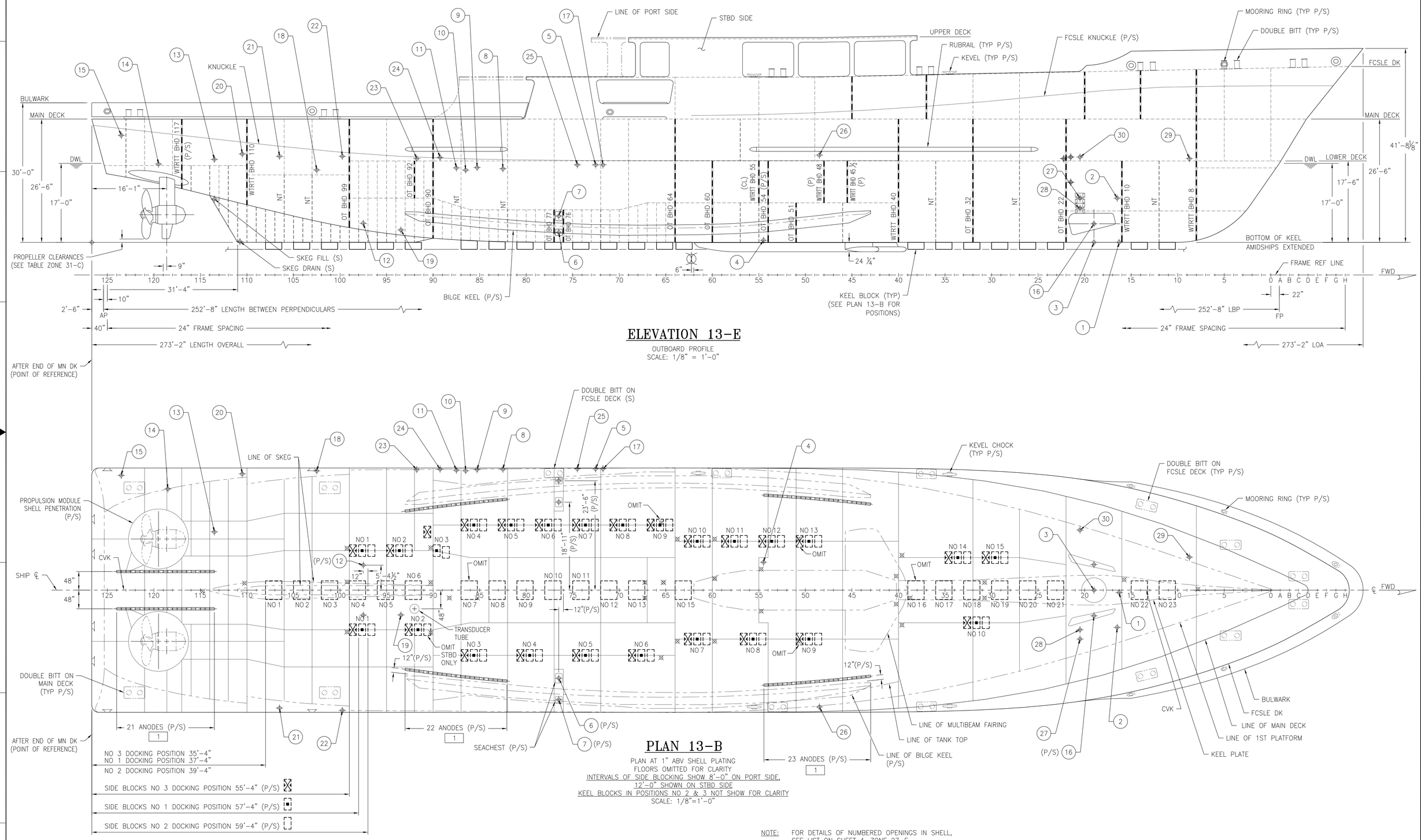
NOAA APPROVAL

NOAA SHIP *RONALD H. BROWN*

DOCKING PLAN

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
F	0YLJ5	RB-085-002	–

SCALE: AS SHOWN | CAD FILENAME RB-085-002.dwg | SHT 1 OF 4



ELEVATION 13-E

OUTBOARD PROFILE
SCALE: 1/8" = 1'-0"

PLAN 13-B

PLAN AT 1" ABV SHELL PLATING
FLOORS OMITTED FOR CLARITY
INTERVALS OF SIDE BLOCKING SHOW 8'-0" ON PORT SIDE,
12'-0" SHOWN ON STBD SIDE
KEEL BLOCKS IN POSITIONS NO 2 & 3 NOT SHOW FOR CLARITY
SCALE: 1/8"=1'-0"

NOTE: FOR DETAILS OF NUMBERED OPENINGS IN SHELL, SEE LIST ON SHEET 4, ZONE 27-E

0 2' 4' 6' 8' 12' 16' 24'
SCALE: 1/8" = 1'-0"

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
F	0YLJ5	RB-085-002	–
SCALE: AS SHOWN		CAD FILENAME: RB-085-002.dwg	SHT 2 OF 4

LIST OF DRAIN PLUGS IN SHELL ⊠

NO.	SIDE	DIST (INCHES)	FWD OR AFT	FRAME	FWD OF AFT REF POINT	DIST OFF CL SHIP
1	P	4"	FWD	8	237'–8"	0'–2 ½"
2	P	6"	FWD	16	221'–10"	2'–3"
3	P/S	6"	FWD	31	191'–10"	1'–8"
4	S	6"	FWD	39	175'–10"	1'–8"
5	P/S	9"	FWD	40	174'–1"	7'–6"
6	P/S	6"	AFT	40	172'–10"	3'–0"
9	P/S	6"	FWD	51	151'–10"	11'–0"
10	P/S	6"	FWD	55	143'–10"	4'–6"
11	P	6"	FWD	60	133'–10"	2'–6"
12	P/S	6"	FWD	60	133'–10"	11'–0"
13	P/S	6"	FWD	64	125'–10"	11'–0"
14	P	6"	AFT	65	122'–10"	1'–8"
15	P/S	12"	AFT	65	122'–4"	14'–6"
16	P/S	6"	AFT	67	118'–10"	1'–8"
17	S	6"	AFT	85	82'–10"	1'–8"
18	S	6"	AFT	88	76'–10"	1'–8"
19	P	6"	AFT	90	72'–10"	1'–8"
20	P/S	6"	AFT	90	72'–10"	9'–1 ½"
21	P	6"	AFT	99	54'–10"	1'–9"
22	P/S	6"	AFT	99	54'–10"	9'–0"
23	P	6"	AFT	110	32'–10"	1'–6"
24	S	6"	FWD	115	23'–10"	0'–3"

TABLE FOR KEEL BLOCK NO. 7 & 8

BLK NO.	DOCKING POSN NO.	AFT SIDE OF BLOCK FROM AFT REF PT	HEIGHT	BEVEL IN 42"
7	1	OMIT	–	–
	2	OMIT	–	–
	3	73'–6"	0–7–2	2 ¼"
8	1	81'–6"	0–1–3+	¾"
	2	83'–6"	0–3–1	1 5⁄16"
	3	79'–6"	0–0–7+	½"

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 8'–0" ⊠

NO 3 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT

SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	55'–4"	7–3–0	4–10–1	9–9–0	5–7–6	(–) 3 ⅛"
P/S	2	63'–4"	7–3–0	3–7–1+	9–9–0	4–4–4+	(–) 2 ½"
P/S	3	71'–4"	11–3–0	3–9–0+	13–9–0	4–6–1	(–) 2 5⁄16"
P/S	4	79'–4"	12–9–0	3–2–7	15–3–0	3–11–0+	(–) 2 1⁄16"
P/S	5	87'–4"	12–9–0	2–5–3	15–3–0	3–0–2+	(–) 1 1⁄16"
P/S	6	95'–4"	12–9–0	1–9–7	15–3–0	2–3–4	(–) 1 ⅜"
P/S	7	103'–4"	12–9–0	1–4–1	15–3–0	1–8–3+	(–) 1 ⅛"
P/S	8	111'–4"	12–9–0	0–11–6+	15–3–0	1–3–1+	(–) 9⁄16"
P/S	9	119'–4"	12–9–0	0–10–2+	15–3–0	1–1–3+	–
P/S	10	127'–4"	9–3–0	0–6–6+	11–9–0	0–9–2	–
P/S	11	135'–4"	9–3–0	0–7–1+	11–9–0	0–9–6+	+ 5⁄16"
P/S	12	143'–4"	9–3–0	0–8–2+	11–9–0	0–11–3+	+ 7⁄16"
P/S	13	151'–4"	9–3–0	0–10–1+	11–9–0	1–2–1+	+ ⅝"
P/S	14	185'–4"	5–9–0	1–3–1+	8–3–0	2–4–3	+ 1 ⅜"
P/S	15	193'–4"	5–9–0	1–7–6	8–3–0	3–3–6	+ 2 ⅞"

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 8'–0" ⊡

NO 2 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT

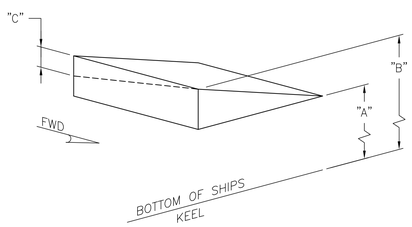
SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	59'–4"	7–3–0	4–2–3	9–9–0	4–11–7+	(–) 2 13⁄16"
P/S	2	67'–4"	7–3–0	3–0–6+	9–9–0	3–9–7	(–) 2 5⁄16"
P/S	3	75'–4"	6–10–4	2–1–0+	9–9–4	2–9–1	(–) 1 ¾"
P/S	4	83'–4"	12–9–0	2–9–6+	15–3–0	3–5–3+	(–) 1 15⁄16"
P/S	5	91'–4"	12–9–0	2–1–3	15–3–0	2–7–5+	(–) 1 ½"
P/S	6	99'–4"	12–9–0	1–6–6+	15–3–0	1–11–6	(–) 1 3⁄16"
P/S	7	107'–4"	12–9–0	1–1–6	15–3–0	1–5–4	(–) 15⁄16"
P/S	8	115'–4"	12–9–0	0–10–5	15–3–0	1–1–6	(–) ¼"
P/S	9	123'–4"	12–9–0	0–10–2+	15–3–0	1–1–3+	–
P/S	10	131'–4"	9–3–0	0–6–7+	11–9–0	0–9–3	+ 3/16"
P/S	11	139'–4"	9–3–0	0–7–5+	11–9–0	0–10–4	+ 5⁄16"
P/S	12	147–4"	9–3–0	0–9–1+	11–9–0	1–0–5+	+ ½"
P/S	13	155'–4"	9–3–0	0–11–3	11–9–0	1–4–0	+ 13⁄16"
P/S	14	195'4"	5–9–0	1–9–1+	8–3–0	3–7–4+	+ 2 ⅞"
P/S	15	187'–4"	5–9–0	1–4–0	8–3–0	2–6–1	+ 1 ⅜"

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 8'–0" ■

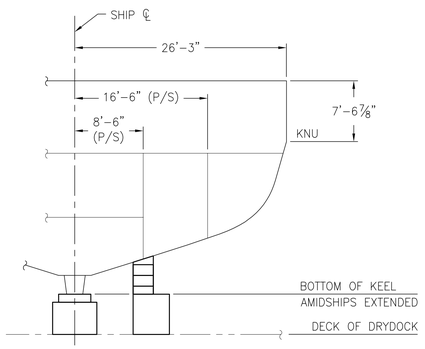
NO 1 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT

SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	57'–4"	7–3–0	4–6–2	9–9–0	5–3–5	(–) 2 ⅞"
P/S	2	65'–4"	7–3–0	3–3–7+	9–9–0	4–1–1	(–) 2 7⁄16"
P/S	3	73'–4"	7–3–0	2–4–5	9–9–0	3–1–0	(–) 1 15⁄16"
P/S	4	81–4"	12–9–0	3–0–2+	15–3–0	3–8–1+	(–) 1 15⁄16"
P/S	5	89'–4"	12–9–0	2–3–2+	15–3–0	2–9–7+	(–) 1 9⁄16"
P/S	6	97–4"	12–9–0	1–7–2+	15–3–0	2–1–4+	(–) 1 ⅜"
P/S	7	105'–4"	12–9–0	1–2–7	15–3–0	1–6–7+	(–) 15⁄16"
P/S	8	113'–4"	12–9–0	0–11–1	15–3–0	1–2–3	(–) 7⁄16"
P/S	9	121'–4"	12–9–0	0–10–3+	15–3–0	1–1–3+	–
P/S	10	129'–4"	9–3–0	0–6–7	11–9–0	0–9–2+	+ 1⁄16"
P/S	11	137'–4"	9–3–0	07–3+	11–9–0	0–10–1	+ 5⁄16"
P/S	12	145'–4"	9–3–0	0–8–6	11–9–0	1–0–0	+ ½"
P/S	13	153'–4"	9–3–0	0–10–6	11–9–0	1–3–0+	+ 1⁄16"
P/S	14	183'–4"	5–9–0	1–2–2+	8–3–0	2–2–4+	+ 1 ⅜"
P/S	15	191'–4"	5–9–0	1–6–2+	8–3–0	2–11–7+	+ 2 ⅞"

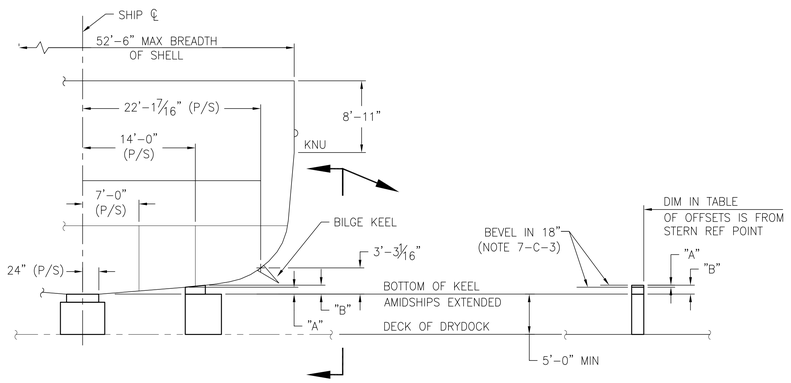
NOTES:
1. DOCKS WHICH HAVE BEARERS FOR SIDE BLOCKS SPACED 16'–0" APART SHALL USE ODD NUMBERED BLOCKS ONLY.
2. LONG LOCATIONS ARE GIVEN FROM STERN REFERENCE POINT.
3. HEIGHTS ARE GIVEN FROM BASELINE.
4. LONG LOCATIONS AND HEIGHTS OF BILGE BLOCKS ARE GIVEN TO AFT SIDE OF BLOCKS.



DETAIL 23–B
TYPICAL BEVELED BLOCK
FWD BLOCK SHOWN, AFT BLOCK SIM
SCALE: NONE



DETAIL 21–B
FRAME 97 LKG AFT
SCALE: 1/8"=1'–0"



DETAIL 19–B
FR 65 LKG AFT
TYPICAL DETAILS OF DOCKING BLOCKS
SCALE: 1/8"=1'–0"

0 2' 4' 6' 8' 12' 16' 24'
SCALE: 1/8" = 1'–0"

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
F	0YLJ5	RB–085–002	–
SCALE: AS SHOWN		CAD FILENAME RB–085–002.dwg	SHT 3 OF 4

TANK ANODE LIST *				
TANK	TANK NO.	QTY	ANODE LOCATION	ITEM NO.
BLST	FOREPEAK (CTR)	20	AS REQUIRED	1
BLST	1 (CTR)	40	AS REQUIRED	1
BLST	2 (P/S)	37	AS REQUIRED	1
BLST	3 (P/S)	17	AS REQUIRED	1
BLST	3 (CTR)	51	AS REQUIRED	1
BLST	4 (P/S)	17	AS REQUIRED	1
BLST	5 (P/S)	38	AS REQUIRED	1
SEWAGE	– (CTR)	12	AS REQUIRED	1
BLST	6 (P/S)	33	AS REQUIRED	1
ROLL STBLN	– (CTR)	34	AS REQUIRED	1
SEACHEST	– (P/S)	3	SEE REF 21	REF 21
FP SEACHEST	– (P)	1	SEE REF 21	REF 21
BOW THRUSTER COMPT	– (CTR)	12	AS REQUIRED	1

* NOTES:
1. SHELL PLATE ANODE LOCATION AND QUANTITY – SEE 13–B.
2. PROPULSION UNIT ANODES PROVIDED WITH UNITS – 9 EACH (P/S).

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 12'–0"							
NO 3 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT							
SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	55'–4"	7–3–0	4–10–1	9–9–0	5–7–6	(–) 3 ⅛"
P/S	2	67'–4"	7–3–0	3–0–6+	9–9–0	3–9–7	(–) 2 5/16"
P/S	3	79'–4"	12–9–0	3–2–7	15–3–0	3–11–0+	(–) 2 1/16"
P/S	4	91'–4"	12–9–0	2–1–3	15–3–0	2–7–5+	(–) 1 ½"
P/S	5	103'–4"	12–9–0	1–4–1	15–3–0	1–8–3+	(–) 1 1/16"
P/S	6	115'–4"	12–9–0	0–10–5	15–3–0	1–1–6	(–) ¼"
P/S	7	127'–4"	9–3–0	0–6–6+	11–9–0	0–9–2	–
P/S	8	139'–4"	9–3–0	0–7–5+	11–9–0	0–10–4	+ 5/16"
P/S	9	151'–4"	OMIT		OMIT		
P/S	10	189'–4"	5–9–0	1–4–7	8–3–0	2–8–1	+ 2 7/8"

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 12'–0"							
NO 2 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT							
SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	59'–4"	7–3–0	4–2–3	9–9–0	4–11–7+	(–) 2 13/16"
P	2	71'–4"	11–3–0	3–9–0	13–9–0	4–6–1	(–) 2 5/16"
P/S	3	83'–4"	12–9–0	2–9–6+	15–3–0	3–5–3+	(–) 1 15/16"
P/S	4	95'–4"	12–9–0	1–9–7	15–3–0	2–3–4	(–) 1 ⅜"
P/S	5	107'–4"	12–9–0	1–1–6	15–3–0	1–5–4	(–) 15/16"
P/S	6	119'–4"	12–9–0	0–10–2+	15–3–0	1–1–3+	–
P/S	7	131'–4"	9–3–0	0–6–7+	11–9–0	0–9–3	+ 3/16"
P/S	8	143'–4"	9–3–0	0–8–2+	11–9–0	0–11–3+	+ 1/16"
P/S	9	155'–4"	9–3–0	0–11–3	11–9–0	0–4–0	+ 13/16"
P/S	10	191'–4"	5–9–0	1–6–2+	8–3–0	2–11–7+	+ 2 7/8"

TABLE OF OFFSETS FOR SIDE BLOCKS INTERVALS GIVEN IN INCREMENTS OF 12'–0"							
NO 1 DOCKING POSITION – AFTER SIDE OF BLOCK FROM AFT REF PT							
SIDE	BLK NO	FWD OF REF PT	POINT A		POINT B		BEVEL IN 18" FOR C
			HB	HT	HB	HT	
P/S	1	57'–4"	7–3–0	4–6–2	9–9–0	5–3–5	(–) 2 7/8"
P/S	2	69'–4"	7–3–0	2–9–7+	9–9–0	3–6–6	(–) 2 3/16"
P/S	3	81'–4"	12–9–0	3–0–2+	15–3–0	3–8–1+	(–) 1 15/16"
P/S	4	93'–4"	12–9–0	1–11–4+	15–3–0	2–5–4	(–) 1 ⅜"
P/S	5	105'–4"	12–9–0	1–2–7	15–3–0	1–6–7+	(–) 15/16"
P/S	6	117'–4"	12–9–0	0–10–3	15–3–0	1–1–3	–
P/S	7	129'–4"	9–3–0	0–6–7	11–9–0	0–6–2+	+ 1/16"
P/S	8	141'–4"	9–3–0	0–8–1	11–9–0	0–10–7+	+ 3/8"
P/S	9	153'–4"	9–3–0	0–10–6	11–9–0	1–3–1+	+ 1 1/16"
P/S	10	187'–4"	5–9–0	1–4–0	8–3–0	2–6–1	+ 1 3/8"

NOTES:
1. LONG LOCATIONS ARE GIVEN FROM STERN REFERENCE POINT.
2. HEIGHTS ARE GIVEN FROM BASELINE.
3. LONG LOCATIONS AND HEIGHTS OF BILGE BLOCKS ARE GIVEN TO AFT SIDE OF BLOCKS.

TABLE OF DISPLACEMENT AND OTHER PROPERTIES FOR DOCKING						
MEAN DRAFT (FT)	NO CORRECTION FOR TRIM					
	DISPLACEMENT (TONS) (SEA WATER)	APPROX MOMENT TO CHANGE TRIM ONE INCH (FOOT TONS)	CB FWD OF STERN REF POINT (FT)	TONS PER INCH IMMERSION (SEAWATER)	LONG CTR OF FLOTATION (FT)	
					AFT OF MIDSHIPS	FWD OF STERN REF PT
11.0	1877.1	231.7	128.7	20.28	7.4	121.5
11.5	2000.0	243.6	128.2	20.70	8.2	120.7
12.0	2125.6	257.1	127.7	21.14	9.1	119.7
12.5	2253.9	271.7	127.2	21.60	10.2	118.7
13.0	2384.7	285.1	126.7	22.02	11.0	117.8
13.5	2518.3	300.8	126.2	22.48	12.0	116.8
14.0	2654.7	316.0	125.7	22.92	12.9	115.9
14.5	2793.8	333.8	125.2	23.41	14.1	114.8
15.0	2935.7	351.2	124.7	23.80	15.1	113.8
15.5	3080.3	366.9	124.2	24.30	15.9	112.9
16.0	3227.3	380.8	123.6	24.67	16.5	112.4
16.5	3376.3	393.0	123.1	25.00	16.8	112.0
17.0	3527.2	403.2	122.7	25.28	17.0	111.8
17.5	3679.7	412.8	122.2	25.54	17.1	111.7
18.0	3833.6	421.7	121.8	25.77	17.1	111.7

LIST OF OPENINGS IN SHELL ⌖										
ITEM NO.	SERVICE	SIZE OF PENETRATION	SIDE	DIST FWD OR AFT	FWD OR AFT	FRAME	FWD OF AFT REF POINT	DISTANCE OFF CL SHIP	HEIGHT ABV BOTTOM OF KEEL	REFERENCE	NOTES
1	UNCONTAMINATED SEAWATER SUCT	2" DIA	S	7"	AFT	16	220'–9"	0'–6"	(–) 0'–½"	17	
2	BOWTHRUSTER CLG OVBD DISCH	2 ½" DIA	S	6"	AFT	16	220'–4"	8'–0"	9'–6"	2	
3	BOWTHRUSTER DISCH	64 1/16" DIA	CL	0"	CTRD	19	215'–4"	0'–0"	0'–0"	2	
4	RS_906 POSN INDICATOR	11" DIA	P	12"	AFT	54	144'–4"	6'–0"	0'–5 ⅜"	10	
5	WTR MAKER OVBD DISCH	5" DIA	P	13"	AFT	72	108'–3"	26'–1"	16'–8"	14	
6	SEACHEST LOW SUCTION	27" X 18"	P/S	12"	AFT	76	100'–4"	18'–11"	2'–2"	21	
7	SEACHEST HIGH SUCTION	27" X 18"	P/S	12"	AFT	76	100'–4"	23"–6"	5'–8"	21	
8	SEAWTR CLG OVBD DISCH	8" DIA	P	12"	AFT	82	88'–4"	26'–0"	15'–10"	16	
9	OILY WTR SEP OVBD DISCH	1 ½" DIA	P	6 ½"	AFT	85	82'–9 ½"	25'–11"	16'–1"	13	
10	AUX SEAWTR OVBD DISCH	6" DIA	P	12"	FWD	87	80'–4"	25'–8"	15'–6 ½"	15	
11	BILGE/BALLAST OVBD DISCH	7" DIA	P	12"	FWD	88	78'–4"	25'–9 ⅜"	16'–0"	12	
12	FIRE PUMP SEACHEST SUCT	16" DIA	P/S	12"	AFT	97	58'–4"	5'–4 ½"	4'–1 ¼"	21	
13	SEAWTR CLG OVBD DISCH	5" DIA	P	12"	FWD	114	26'–4"	12'–6 ⅜"	17'–10"	24	
14	SEAWTR CLG OVBD DISCH	5" DIA	P	12"	AFT	119	14'–4"	21'–9"	16'–10"	24	
15	SEAWTR CLG OVBD DISCH	½" DIA	P	12"	AFT	123	6'–4"	24'–8"	23'–0"	24	
16	BOWTHRUSTER SUCTION	10'–2" X 3'–9"	P/S	0"	CTRD	19	215'–4"	5'–6"	4'–0"	3	
17	MSD OVBD DISCH	2 ½" DIA	P	6"	FWD	72	109'–10"	26'–11"	16'–8"	22	
18	DECK DRAIN OVBD DISCH	1 ½" DIA	P	12"	AFT	102	48'–4"	25'–7 ⅝"	15'–6 ¾"	22	
19	AUX SEAWTR SEACHEST SUCT	12" DIA	S	11"	AFT	93	66'–5"	5'–4"	2'–8"	21	
20	AC CLG OVBD DISCH	2" DIA	P	12"	AFT	110	32'–4"	25'–0"	19'–0"	SHIPCHECK	
21	DECK DRAIN OVBD DISCH	2" DIA	S	12"	AFT	106	40'–4"	25'–4"	18'–6"	SHIPCHECK	
22	DECK DRAIN OVBD DISCH	2" DIA	P	6"	FWD	100	53'–10"	25'–10"	18'–6"	SHIPCHECK	
23	DECK DRAIN OVBD DISCH	1 ½" DIA	P	18"	AFT	91	69'–10"	25'–11"	18'–0"	SHIPCHECK	
24	DECK DRAIN OVBD DISCH	1 ½" DIA	P	6"	AFT	89	74'–10"	26'–0"	18'–3"	SHIPCHECK	
25	LAB DRAIN OVBD DISCH	2 ½" DIA	P	12"	AFT	74	104'–4"	26'–1"	16'–8"	SHIPCHECK	
26	TBD DRAIN OVBD DISCH		S	12"	AFT	48	156'–4"	25'–1"	18'–9"	SHIPCHECK	SIZE NOT NOTED
27	TBD DRAIN OVBD DISCH	2 ½" DIA	S	12"	AFT	20	212'–4"	10'–6"	9'–6"	SHIPCHECK	
28	TBD DRAIN OVBD DISCH	2 ½" DIA	S	12"	AFT	20	212'–4"	8'–6"	7'–6"	SHIPCHECK	
29	CHAIN LKR GRAVITY DRAIN DISCH	2" DIA	P	6"	FWD	9	235'–10"	7'–1"	18'–0"	SHIPCHECK	
30	UNCONTAMINATED SEAWTR HIGH SUCT	2 ½"DIA	P	6"	AFT	22	212'–4"	12'–11"	18'–4"	SHIPCHECK	

PROPELLER TIP CLEARANCE TABLE		
TRIM (INCHES)	BY	PROPELLER CLEARANCE INCHES FROM LOW POINT
6"	BOW	35.1
0	–	31.5
6"	STERN	29.1
12"	STERN	26.6
18"	STERN	24.2
24"	STERN	21.8

BEARING ON BLOCKS				
SUPPORT		BEARING ON SHALL PLATING		
		8'–0" SPACES BEARING	12'–0" SPACES BEARING	16'–0" SPACES BEARING
SIDE BLOCKS 30"x18" (TOTAL P/S)	SQ INCHES	16200.0	9720.0	8640.0
	SQ FEET	112.5	67.5	60.0
KEEL BLOCKS 48"x42" OR 24"x42"	SQ INCHES	30240.0	30240	30240.0
	SQ FEET	210.0	210.0	210.0
TOTAL BEARING AREA	SQ INCHES	46440.0	39960.0	38880.0
	SQ FEET	322.5	277.5	270.0
BEARING LOAD	LB/SQ INCH BLOCKING	170.1	197.7	203.2
	LT/SQ FOOT BLOCKING	10.94	12.71	13.06

NOTE: KEEL BLOCK BEARING AREA BASED ON POSITION 3 (12 BLOCKS WITH 48 INCH WIDTH OF SHOE AND 6 BLOCKS WITH 24 INCH WIDTH OF SHOE)

FULL LOAD DISPLACEMENT (LT): 3527.22
FULL LOAD DISPLACEMENT (LB): 7900972.8

SIZE	CAGE CODE	NOAA DRAWING NUMBER	REV
F	0YLJ5	RB–085–002	–
SCALE: AS SHOWN		CAD FILENAME RB–085–002.dwg	SHT 4 OF 4